

GP3662/15  
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#6

In re Application of

DOUGLAS F. GOFF ET AL.

Serial No. 10/023,420

Filed: December 14, 2001

For: PROCESS FOR INTERPRETING  
FAULTS FROM A  
FAULT-ENHANCED  
3-DIMENSIONAL SEISMIC  
ATTRIBUTE VOLUME

GROUP ART UNIT 3662

EXAMINER:

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GROUP 3600

P.O. Box 6006  
San Ramon, CA 94583-0806

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, DC 20231

Sir:

This Information Disclosure Statement is submitted pursuant to 37 CFR §§ 1.56, 1.98 and 1.97, particularly 1.97(c). The documents listed on the attached Form PTO-1449 are brought to the Examiner's attention. Copies of these documents are enclosed.

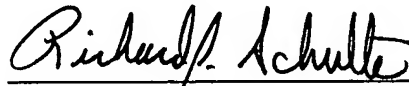
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I hereby certify that I have a reasonable basis for believing that this correspondence will be deposited with the United States Postal Service as first class mail in an envelope addressed to:  
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In the event a first Office Action on the merits has been mailed by the Patent Office before receipt by the Patent Office of this Information Disclosure Statement, the Patent Office is authorized to charge the fee under 37 CFR §§ 1.17(p) and 1.97(c)(2) for this Information Disclosure Statement to Deposit Account No. 03-1620. A duplicate copy of this paper is enclosed for deposit account use, if needed.

Respectfully submitted,

A handwritten signature in black ink, reading "Richard J. Schulte", is written over a horizontal line.

Richard J. Schulte  
Attorney for Applicants  
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RJSchulte:cs  
Enclosures

September 26, 2002

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SHEET 3 OF 3

FORM PTO-1449  
(REV. 7-80)

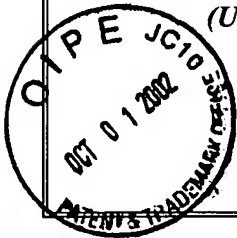
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ATTY. DOCKET NO.  
005950-664

SERIAL NO.  
10/023,420

### LIST OF PRIOR ART CITED BY APPLICANT

(Use several sheets if necessary)



APPLICANT  
Douglas Goff et al.

FILING DATE  
12/14/01

GROUP

### OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

BF	Rosen, Ben, "Morphological Image Processing Techniques Applied to Detection of Correlogram Tracks," <i>U.S. Navy Journal of Underwater Acoustics</i> , Vol. 44, No. 2 (April 1994).
BG	Rosenfeld et al., "Sequential Operations in Digital Picture Processing," <i>J. Assoc. Comp. Mach.</i> , Vol. 13, No. 4, pages 471-494 (1966).
BH	Rosenfeld et al., "Distance Functions on Digital Pictures," <i>Pattern Recognition</i> , Vol. 1, pages 33-61 (1968).
BI	Steeghs et al., "Extraction of Attributes from 3D Seismic Data," <i>EAGE 58th Conference and Technical Exhibition - Amsterdam, The Netherlands</i> , (June 3-7, 1996).
BJ	Vanderbrug, G. J., "Line Detection in Satellite Imagery," <i>IEEE Transactions on Geoscience Electronics</i> , Vol. GE-14, No. 1 (January 1976).
BK	Van Herk, Marcel, "A Fast Algorithm for Local Minimum and Maximum Filters on Rectangular and Octagonal Kernals," <i>Pattern Recognition Letters</i> 13, pp. 517-521 (July 1992).
BL	Vincent, Luc, "Current Topic in Applied Morphological Image Analysis," in <i>Current Trends in Stochastic Geometry and its Applications</i> , W. S. Kendall and O. E. Barndorff-Nelson and M. C. van Lieshout, Editors, Chapman & Hall, London, pp. 1-68 (1997).
BM	Vincent, Luc, "Efficient Computation of Various Types of Skeletons," <i>Proc. SPIE Medical Imaging V</i> , Vol. 1445, pp. 297-311 (1991).
BN	Vincent, Luc, "Grayscale Area Openings and Closings, their Efficient Implementation and Applications," <i>Proc. EURASIP Workshop on Mathematical morphology and its Applications to Signal Processing</i> , Barcelona, pp. 22-27 (May 1993).
BO	Vincent, Luc, "Minimal Path Algorithms for the Robust Detection of Linear Features in Gray Images," <i>Proc. ISMM'98, International Symposium on Mathematical Morphology</i> , H.J.A.M. Heijmans and J. Roerdink eds., Kluwer Academic Publishers, pp 331-338 (June 1998).
BP	Vincent, Luc, "Morphological Area Openings and Closings for Grayscale Images," in <i>Proc. NATO Shape in Picture Workshop</i> , Springer Verlag, The Netherlands, pp. 197-208 (Sept. 1992).
BQ	Vincent, Luc, "Morphological Grayscale Reconstruction in Image Analysis: Applications and Efficient Algorithms" <i>IEEE Transactions on Image Processing</i> , Vol. 2, pp. 176-201 (1993).
BR	Yip et al., "Building Surfaces form Three-Dimensional Image Data on the Intel Paragon," <i>1996 Institution of Electrical Engineers</i> , Abstract (1996).
BS	Zhang, Z., "A Neural Network for the Segmentation of Textured Images," <i>1996 Institution of Electrical Engineers</i> , Abstract (1996).
BT	Zucker et al., "A Three-Dimensional Edge Operator" <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , Vol. PAMI-3, No. 3 (May 1981).

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<b>LIST OF PRIOR ART CITED BY APPLICANT</b> <i>(Use several sheets if necessary)</i>		<b>RECEIVED</b> OCT 04 2002	
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**OTHER PRIOR ART** *(Including Author, Title, Date, Pertinent Pages, Etc.)*

AR	Chung et al., "3-D Interpretation of Imperfect Line Drawings," <i>BMUC '95 Proceedings of the 6th British Machine Vision Conference</i> , Part Vol. 1, pp. 287-296, Vol 1, Abstract (1995).
AS	Ester et al., "A Density-Based Algorithm for Discovering Clusters in Large Spatial Databases with Noise," <i>Proceedings of 2nd International Conference on Knowledge Discovery and Data Mining</i> .
AT	Finn et al., "Seismic 3 - 3-D and General Processing - Estimation of Three-Dimensional Dip and Curvature from Reflection Seismic Data," <i>56th Annual International Meeting and Exposition</i> , pp. 355-358 (Nov. 2-6, 1986).
AU	Grimaud, Michael, "A New Measure of Contrast: the Dynamics," <i>Proc. SPIE Image Algebra and Morphological Imaging Processing</i> , pp. 292-305 (July 1992).
AV	Gurney, Charlotte M., "Threshold Selection for Line Detection Algorithms," <i>IEEE Transactions on Geoscience and Remote Sensing</i> , Vol. GE-18, No. 2 (April 1980).
AW	Hoppe, Hugues, "Surface Reconstruction from Unorganized Points," <i>Proc. of Siggraph</i> , pp. 71-78 (1992).
AX	Hutchinson, Suzi, "FZAP! 1.0 Offers Automated Fault Picking," webpage, pp. 1-4 (May/June 1997).
AY	Iverson et al., "Logical/Linear Operators for Image Curves," <i>IEEE Transactions and Pattern Analysis and Machine Intelligence</i> , Vol. 17, No. 10, pp. 982-996 (October 1995).
AZ	Lobregt et al., "Three-Dimensional Skeletonization: Principle and Algorithm," <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , Vol. PAMI-2, No. 1, pp. 75-77 (January 1980).
BA	Luo et al., "Interpretation 2: Structural Case Histories, Edge Detection and Stratigraphic Analysis Using 3D Seismic Data", <i>66th Annual SEG Meeting</i> , pp. 324-327 (November 10, 1996).
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BC	Monga et al., "Using Partial Derivatives of 3D Images to Extract Typical Surface Features," <i>Computer Vision and Image Understanding</i> , Vol. 61, No. 2, March, pp. 171-189 (1995).
BD	Monga et al., "Recursive Filtering and Edge Tracking: Two Primary Tools for 3D Edge Detection," <i>Image and Vision Computing</i> , Vol. 9, No. 4, pp. 203-214 (August 1991).
BE	Riazanoff et al., "Ridge and Valley Line Extraction from Digital Terrain Models," <i>Int. J. Remote Sensing</i> , Vol. 9, No. 6, pp. 1175-1183 (1988).
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		APPLICANT Douglas Goff et al.	GROUP <b>GROUP 360</b>
		FILING DATE 12/14/01	

## U.S. PATENT DOCUMENTS

EXAMINER INITIALS*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	3,899,768	08/12/75	Quay et al.	340	15.5 DS	07/11/73
	AB	4,779,237	10/18/88	Bodine	367	47	08/27/84
	AC	5,563,949	10/08/96	Bahorich et al.	364	421	12/12/94
	AD	5,724,309	03/03/98	Higgs et al.	367	48	03/06/96
	AE	5,831,935	11/03/98	Luo et al.	367	47	03/05/96
	AF	5,838,564	11/17/98	Bahorich et al.	364	421	10/01/96
	AG	5,987,388	11/16/99	Crawford et al.	702	16	12/26/97
	AH	6,018,498	01/25/00	Neff et al.	367	72	09/02/98
	AI						
	AJ						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION (YES/NO)
	AK						
	AL						
	AM						
	AN						

## OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AO	Bahorich et al., "3-D Seismic Discontinuity for Faults and Stratigraphic Features: The Coherence Cube," SEG Leading Edge, Vol. 14, pp. 1053-1058 (1995)		
AP	Bhalla et al., "Automatic Feature Detection and Correspondence in a Stereo-Vision Application," 1996 <i>Institution of Electrical Engineers</i> , Abstract (1996).		
AQ	Blonda et al., "Fuzzy Neural Network Based Segmentation of Multispectral Magnetic Resonance Brain Images," <i>Proceedings of the SPIE - The International Society for Optical Engineering Conference</i> , Vol. 2761 pp. 146-153, Abstract (1996).		
<table border="1"> <tr> <td>EXAMINER</td> <td>DATE CONSIDERED</td> </tr> </table>		EXAMINER	DATE CONSIDERED
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